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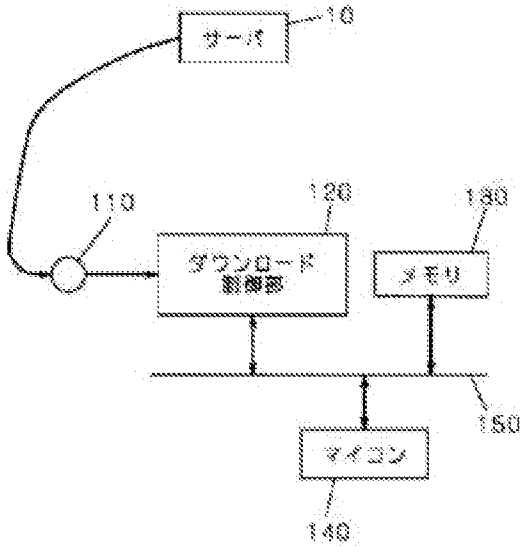
(54) EQUIPMENT PROVIDED WITH SOFTWARE DOWNLOADING FUNCTION, AND SOFTWARE DOWNLOADING METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To solve the problem that a loadable memory capacity is limited and the memory capacity lacks and downloading can not be performed when downloading is repeatedly executed in conventional equipment with a software downloading function.
SOLUTION: The unused software among the software stored in a memory 130 is erased, thereby securing the free area of the memory 130.



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CLAIMS

[Claim(s)]
[Claim 1]It has a memory which memorizes software downloaded by a download control means and said download control means for downloading software, When downloading software newly and availabilities of said memory run short, Apparatus with a software download function enabling new download of software by eliminating software which is not used among software accumulated in said memory, and securing a field of said memory.
[Claim 2]An identification information addition means which adds information for identifying software to software accumulated in said memory, The apparatus with a software download function according to claim 1 choosing software which is provided with an identification information management tool which manages information for identifying said software, and said identification information management tool eliminates.
[Claim 3]The apparatus with a software download function according to claim 2, wherein a user can choose and eliminate arbitrary software by showing a user information for identifying said software.
[Claim 4]The apparatus with a software download function according to claim 1 characterized by what a user is notified of when downloading software newly and capacity of said memory runs short.
[Claim 5]The apparatus with a software download function according to claim 2, wherein information for identifying said software chooses from software with said low execution priority as software which said identification information management tool eliminates including an execution priority of said software.
[Claim 6]The apparatus with a software download function according to claim 5 when said execution priority has much execution frequency of the software, wherein it becomes high.
[Claim 7]The apparatus with a software download function according to claim 5 by which it is characterized by becoming high when time when the software was performed for said

execution priority is close to current time.

[Claim 8]When it has temporary memory and capacity of said memory runs short, software is downloaded to said temporary memory, The apparatus with a software download function according to claim 1 characterized by replacing software only when it asks a user whether replace software or not and a user has agreed with him after performing.

[Claim 9]A downloading agency is provided with an elimination list of software which may be eliminated by download of the 1st software, The apparatus with a software download function according to claim 1, When it has an elimination list acquisition means and said 1st software is downloaded, A software downloading method eliminating software which may be eliminated when said software which said elimination list acquisition means acquired said elimination list, and was written to said elimination list, and which may be eliminated is on a memory.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to apparatus with a software download function, and a software downloading method.
[0002]
[Description of the Prior Art]Conventionally, in the personal computer or the cellular phone, the method of downloading through the Internet etc. is used in renewal of software, the purchase of new software, etc. Renewal of software, etc. have been performed by download also in a digital broadcasting receiver machine or a game machine.
[0003]The downloaded software is saved in the memory carried in apparatus, and is read and performed if needed.
[0004]
[Problem to be solved by the invention]However, in conventional apparatus with a software download function, when there is restriction of the memory space which can be carried and repeat execution of the download was carried out, SUBJECT that memory space could be insufficient and could not download occurred.
[0005]
[Means for solving problem]In order to solve said SUBJECT, the apparatus with a software download function of this invention eliminates intact software after download among the software accumulated in the memory, and secures memory space.
[0006]According to this invention, it is possible to secure memory space, even when memory space runs short, and to download software newly.
[0007]
[Mode for carrying out the invention]A download control means for the invention of this invention according to claim 1 to download software, It has a memory which memorizes the

software downloaded by said download means, When downloading software newly and the availabilities of said memory run short, the software which is not used among the software accumulated in said memory is eliminated, and it has the operation which enables new download of software by securing the field of said memory.

[0008]In the apparatus with a software download function by which the invention of this invention according to claim 2 was indicated to Claim 1, It has an identification information addition means which adds the information for identifying software to the software accumulated in said memory, and an identification information management tool which manages said identification information, and has the operation as which said identification information management tool chooses the software to eliminate.

[0009]In the apparatus with a software download function indicated to Claim 2, the invention of this invention according to claim 3 has the operation which can choose and eliminate software with an arbitrary user by showing a user said identification information.

[0010]In the apparatus with a software download function indicated to Claim 1, the invention of this invention according to claim 4 has the operation of which a user is notified, when downloading software newly and the capacity of said memory runs short.

[0011]In the apparatus with a software download function by which the invention of this invention according to claim 5 was indicated to Claim 2, It has the operation which the information for identifying said software chooses from software with said low execution priority as software which said identification information management tool eliminates including the execution priority of said software.

[0012]In the apparatus with a software download function indicated to Claim 5, the invention of this invention according to claim 6 has the operation which becomes high, when the execution frequency of the software has many said execution priorities.

[0013]In the apparatus with a software download function indicated to Claim 5, the invention of this invention according to claim 7 has the operation which becomes high, when the time when the software was performed for said execution priority is close to current time.

[0014]In the apparatus with a software download function by which the invention of this invention according to claim 8 was indicated to Claim 1, Only when it asks a user whether replace software or not and the user has agreed with him after downloading and performing software to said temporary memory, when it has temporary memory and the capacity of said memory runs short, it has the operation which replaces software.

[0015]A downloading agency the invention of this invention according to claim 9 by download of the 1st software. Have an elimination list of the software which may be eliminated and the apparatus with a software download function according to claim 1, When it has an elimination list acquisition means and said 1st software is downloaded, Said elimination list acquisition means acquires said elimination list, and when said software which was written to said

elimination list and which may be eliminated is on a memory, it has the operation which eliminates the software which may be eliminated.

[0016]Hereafter, an embodiment of the invention is described using drawing 11 from drawing 1.

[0017](Embodiment 1) Drawing 1 is a block diagram of the apparatus with a software download function concerning this invention.

[0018]The server which 10 becomes the download origin of software in drawing 1, The input/output terminal which performs the input of the software which 110 downloads, and the signal output to the server 10, The download control section to which 120 performs control of download of transmission of download start instruction, etc. to the server 10, the memory in which 130 accumulates software, the microcomputer with which 140 controls each part, and 150 are the buses of a microcomputer.

[0019]Drawing 2 is a figure showing an example of the address area of the memory 130.

[0020]In drawing 2, the 1st software with which 200 was accumulated in the physical address of the memory 130, and 210 was accumulated in the memory 130, the 2nd software with which 220 was accumulated in the memory 130, and 230 are the free space of the memory 130.

[0021]When downloading software, the microcomputer 140 takes out directions to the download control section 120. The download control section 120 which received directions sends download start instruction to the server 10, and download is started. The downloaded software is inputted from the input/output terminal 110, and is accumulated in the memory 130 via the download control section 120. Although it presupposed that the downloaded software is accumulated in the memory 130 via the download control section 120 in this example, interface circuitry may be used separately.

[0022]When the memory 130 has an address area like drawing 2, capacity will be 2 M bytes with the data width of 8 bits. When the 1st software 210 whose capacity is 512 K bytes, and the 2nd software 220 whose capacity is 1 M byte are accumulated like drawing 2 like drawing 2, the capacity of the free space 230 will be 512 K bytes.

[0023]Here, it is going to download newly the 3rd software whose capacity is 800 K bytes. In this case, since the capacity of the free space 230 is 512 K bytes, the way things stand, it is not downloadable.

[0024]Then, the microcomputer 140 searches intact software and secures only the availability which can download said 3rd software together with the capacity of the present free space 230.

[0025]First, when the 1st software 210 is intact, by eliminating the 1st software 210, an availability will be 1 M byte and said 3rd software can be downloaded.

[0026]When the 2nd software 220 is intact, by eliminating the 2nd software 220, an availability will be 1.5 M bytes and said 3rd software can be downloaded.

[0027](Embodiment 2) Drawing 3 is a block diagram of the apparatus with a software download function concerning this invention, and drawing 4 is a figure showing an example of the address area of the memory 130. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.
[0028]In drawing 3, the identification information adjunct which adds information for 300 to identify the downloaded software to software, and 310 are the identification information Management Department which manages said identification information.
[0029]In drawing 4, it is a flag with which 400 shows the identification information (it is hereafter described as software 1 identification information) of the 1st software 200, 410 shows the identification information (it is hereafter described as software 2 identification information) of the 2nd software 210, and 420 shows use and un-using it of software.
[0030]The downloaded software is inputted into the identification information adjunct 300 via the download control section 120. In the identification information adjunct 300, identification information is added to said software. The capacity of the flag 420 and said software, the start address of memory 130 inner area accumulated, etc. are included in said identification information. Then, said software to which said identification information was added is accumulated in the memory 130.
[0031]Furthermore, the identification information Management Department 310 rewrites the flag 420 in the code which shows un-using it, when rewriting the flag 420 in the code which shows under use when using said software, and making said software intact.
[0032]It cannot download, when downloading the 3rd software newly and the free space 230 runs short compared with the capacity of said 3rd software.
[0033]At this time, the identification information Management Department 310 checks the flag 420 of the software 1 identification information 400, When intact, the software 1 identification information 400 is investigated, and when the capacity which doubled the capacity of the 1st software 200 and the capacity of the free space 230 is larger than the capacity of said 3rd software, it becomes downloadable.
[0034]When the capacity which doubled the capacity of said 1st software 200 and the capacity of the free space 230 is smaller than the capacity of said 3rd software, or when the 1st software 200 is in use, investigation with the same said of the software 2 identification information 410 is conducted.
[0035]As mentioned above, when the capacity of said 3rd software newly downloaded by intact software's existing and eliminating said intact software can be secured, the identification information Management Department 310 takes out directions of said intact software to the microcomputer 140. And intact software is eliminated and said 3rd software becomes downloadable from the memory 130.
[0036](Embodiment 3) Drawing 5 is a block diagram of apparatus with a software download

function concerning this invention. About the same composition as an embodiment mentioned above, explanation is omitted using the same mark.

[0037]A display section for a monitor for 500 to display said identification information and 510 to output said identification information to the monitor 500 in drawing 5, An output terminal for 520 to connect with the monitor 500 and 530 are user I/F parts for users, such as a remote control and a keyboard, to give directions to apparatus with a software download function.

[0038]When downloading software newly, the identification information Management Department 300 reads identification information of software accumulated in the memory 130. And said read identification information is transmitted to the display section 510. In the display section 510, said identification information which changed said inputted identification information into a video signal, and was changed into a video signal is outputted to the monitor 500 from the output terminal 520.

[0039]A user chooses the software which may be eliminated from said identification information displayed on the monitor 500, and sends directions to the user I/F part 530.

[0040]If elimination directions are received, the microcomputer 140 will eliminate the applicable portion of the memory 130, and will secure an availability.

[0041](Embodiment 4) Drawing 6 is a block diagram of the apparatus with a software download function concerning this invention. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0042]In drawing 6, 600 is an insufficient memory space informing part for notifying a user of the shortage of an availability of the memory 130.

[0043]When downloading software newly, the server 10 transmits the capacity of said software to download to apparatus with a software download function. The download control section 120 receives said software capacity information, and compares with the availability information on the memory 130 received beforehand. When said software capacity is larger than said availability (i.e., when it cannot download), it directs to the insufficient memory space informing part 600. It outputs to a monitor that the insufficient memory space informing part 600 wants the availability of the memory 130 for the user. Although the monitor was chosen as a recognition means of said notice, if a user can be recognized, it is feasible by other means, such as a sound.

[0044](Embodiment 5) Drawing 7 is a figure showing an example of the address area of the memory 130. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0045]In drawing 7, 700 is identification information which shows the execution priority of software.

[0046]When choosing the software eliminated from the software accumulated in the memory 130, the identification information Management Department 310 searches the low software of

the priority 700 with this composition first. Here, the priority 700 shall become low in order of A, B, C, and .. When the priority (it is hereafter described as the priority 1) of the 1st software 200 and the priority (it is hereafter described as the priority 2) of the 2nd software 210 are measured, the priority 1 is lower than the priority 2. Next, the identification information Management Department 310 checks the flag 420 of the software 1 identification information 400, When intact, the software 1 identification information 400 is investigated, and when the capacity which doubled the capacity of the 1st software 200 and the capacity of the free space 230 is larger than the capacity of said 3rd software, it becomes downloadable.

[0047](Embodiment 6) Drawing 8 is a figure showing an example of the address area of the memory 130. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0048]In drawing 8, 800 is a counter holding the execution frequency of software.

[0049]The value of the counter 800 increases, whenever each software accumulated in the memory 130 is performed. The identification information Management Department 310 makes high the priority 700 of software with a high value of the counter 800. A user sets up arbitrarily or the threshold value of the priority 700 can determine the execution frequency for said every software as origin statistically here. It is also possible to change by using a timer at arbitrary time.

[0050](Embodiment 7) Drawing 9 is a figure showing an example of an address area of the memory 130. About the same composition as an embodiment mentioned above, explanation is omitted using the same mark.

[0051]In drawing 9, 900 is a time flag holding the latest execution time of software.

[0052]The time flag 900 holds the time, whenever each software accumulated in the memory 130 is performed. The identification information Management Department 310 compares a value of the time flag 900 with the present time, and makes high the present time and the priority 700 of near software.

[0053](Embodiment 8) Drawing 10 is a block diagram of apparatus with a software download function concerning this invention. About the same composition as an embodiment mentioned above, explanation is omitted using the same mark.

[0054]In drawing 10, since the availabilities of the memory 130 run short, 1000 is temporary memory which stores temporarily the software which is not downloadable.

[0055]When the capacity of the software to download is larger than the availability of the memory 130, it accumulates in the temporary memory 1000 first. Said software accumulated in the temporary memory 1000 is once performed. Then, the microcomputer 140 displays an inquiry whether the software in the temporary memory 1000 is replaced with the software in the memory 130 on a monitor through a display section. Although the monitor was chosen as a means for making a user recognize said inquiry, if a user can be recognized, it is feasible by

other means, such as a sound.

[0056]When the user who received the inquiry points in the user I/F part 530 to whether it agrees or not and directions of consent are made, the microcomputer 140 eliminates the intact software accumulated in the memory 130.

[0057](Embodiment 9) Drawing 11 is a block diagram showing the software downloading method concerning this invention. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0058]In drawing 11, 1100 acquires the list of the software which may be eliminated from the server 10, and is an elimination list acquisition part to hold.

[0059]When downloading software, the server 10 transmits said elimination list first. Said elimination list is transmitted to the elimination list acquisition part 1100 from a download control section.

[0060]When eliminating software, the microcomputer 140 checks the contents of said acquired elimination list to the elimination list acquisition part 1100. Next, the software written to said elimination list is searched from the software accumulated in the memory 130. As a result of search, if there is applicable software, the software will be eliminated and the availability of the memory 130 will be secured.

[0061]

[Effect of the Invention]As mentioned above, according to the apparatus with a software download function and the software downloading method of this invention, even when memory space runs short, memory space can be secured, and software can be downloaded newly.

[Translation done.]

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MEANS

[Means for solving problem]In order to solve said SUBJECT, the apparatus with a software download function of this invention eliminates intact software after download among the software accumulated in the memory, and secures memory space.
[0006]According to this invention, it is possible to secure memory space, even when memory space runs short, and to download software newly.
[0007]
[Mode for carrying out the invention]A download control means for the invention of this invention according to claim 1 to download software, It has a memory which memorizes the software downloaded by said download means, When downloading software newly and the availabilities of said memory run short, the software which is not used among the software accumulated in said memory is eliminated, and it has the operation which enables new download of software by securing the field of said memory.
[0008]In the apparatus with a software download function by which the invention of this invention according to claim 2 was indicated to Claim 1, It has an identification information addition means which adds the information for identifying software to the software accumulated in said memory, and an identification information management tool which manages said identification information, and has the operation as which said identification information management tool chooses the software to eliminate.
[0009]In the apparatus with a software download function indicated to Claim 2, the invention of this invention according to claim 3 has the operation which can choose and eliminate software with an arbitrary user by showing a user said identification information.
[0010]In the apparatus with a software download function indicated to Claim 1, the invention of this invention according to claim 4 has the operation of which a user is notified, when downloading software newly and the capacity of said memory runs short.
[0011]In the apparatus with a software download function by which the invention of this

invention according to claim 5 was indicated to Claim 2, It has the operation which the information for identifying said software chooses from software with said low execution priority as software which said identification information management tool eliminates including the execution priority of said software.

[0012]In the apparatus with a software download function indicated to Claim 5, the invention of this invention according to claim 6 has the operation which becomes high, when the execution frequency of the software has many said execution priorities.

[0013]In the apparatus with a software download function indicated to Claim 5, the invention of this invention according to claim 7 has the operation which becomes high, when the time when the software was performed for said execution priority is close to current time.

[0014]In the apparatus with a software download function by which the invention of this invention according to claim 8 was indicated to Claim 1, Only when it asks a user whether replace software or not and the user has agreed with him after downloading and performing software to said temporary memory, when it has temporary memory and the capacity of said memory runs short, it has the operation which replaces software.

[0015]A downloading agency the invention of this invention according to claim 9 by download of the 1st software. Have an elimination list of the software which may be eliminated and the apparatus with a software download function according to claim 1, When it has an elimination list acquisition means and said 1st software is downloaded, Said elimination list acquisition means acquires said elimination list, and when said software which was written to said elimination list and which may be eliminated is on a memory, it has the operation which eliminates the software which may be eliminated.

[0016]Hereafter, an embodiment of the invention is described using drawing 11 from drawing 1.

[0017](Embodiment 1) Drawing 1 is a block diagram of apparatus with a software download function concerning this invention.

[0018]A server which 10 becomes download origin of software in drawing 1, An input/output terminal which performs an input of software which 110 downloads, and a signal output to the server 10, A download control section to which 120 performs control of download of transmission of download start instruction, etc. to the server 10, a memory in which 130 accumulates software, a microcomputer with which 140 controls each part, and 150 are the buses of a microcomputer.

[0019]Drawing 2 is a figure showing an example of an address area of the memory 130.

[0020]In drawing 2, the 1st software with which 200 was accumulated in the physical address of the memory 130, and 210 was accumulated in the memory 130, the 2nd software with which 220 was accumulated in the memory 130, and 230 are the free space of the memory 130.

[0021]When downloading software, the microcomputer 140 takes out directions to the

download control section 120. The download control section 120 which received directions sends download start instruction to the server 10, and download is started. The downloaded software is inputted from the input/output terminal 110, and is accumulated in the memory 130 via the download control section 120. Although it presupposed that the downloaded software is accumulated in the memory 130 via the download control section 120 in this example, interface circuitry may be used separately.

[0022]When the memory 130 has an address area like drawing 2, capacity will be 2 M bytes with the data width of 8 bits. When the 1st software 210 whose capacity is 512 K bytes, and the 2nd software 220 whose capacity is 1 M byte are accumulated like drawing 2 like drawing 2, the capacity of the free space 230 will be 512 K bytes.

[0023]Here, it is going to download newly the 3rd software whose capacity is 800 K bytes. In this case, since the capacity of the free space 230 is 512 K bytes, the way things stand, it is not downloadable.

[0024]Then, the microcomputer 140 searches intact software and secures only the availability which can download said 3rd software together with the capacity of the present free space 230.

[0025]First, when the 1st software 210 is intact, by eliminating the 1st software 210, an availability will be 1 M byte and said 3rd software can be downloaded.

[0026]When the 2nd software 220 is intact, by eliminating the 2nd software 220, an availability will be 1.5 M bytes and said 3rd software can be downloaded.

[0027](Embodiment 2) Drawing 3 is a block diagram of the apparatus with a software download function concerning this invention, and drawing 4 is a figure showing an example of the address area of the memory 130. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0028]In drawing 3, an identification information adjunct which adds information for 300 to identify downloaded software to software, and 310 are the identification information Management Department which manages said identification information.

[0029]In drawing 4, it is a flag with which 400 shows identification information (it is hereafter described as software 1 identification information) of the 1st software 200, 410 shows identification information (it is hereafter described as software 2 identification information) of the 2nd software 210, and 420 shows use and un-using it of software.

[0030]Downloaded software is inputted into the identification information adjunct 300 via the download control section 120. In the identification information adjunct 300, identification information is added to said software. Capacity of the flag 420 and said software, a start address of memory 130 inner area accumulated, etc. are included in said identification information. Then, said software to which said identification information was added is accumulated in the memory 130.

[0031]Furthermore, the identification information Management Department 310 rewrites the flag 420 in the code which shows un-using it, when rewriting the flag 420 in the code which shows under use when using said software, and making said software intact.
[0032]It cannot download, when downloading the 3rd software newly and the free space 230 runs short compared with the capacity of said 3rd software.
[0033]At this time, the identification information Management Department 310 checks the flag 420 of the software 1 identification information 400, When intact, the software 1 identification information 400 is investigated, and when the capacity which doubled the capacity of the 1st software 200 and the capacity of the free space 230 is larger than the capacity of said 3rd software, it becomes downloadable.
[0034]When the capacity which doubled the capacity of said 1st software 200 and the capacity of the free space 230 is smaller than the capacity of said 3rd software, or when the 1st software 200 is in use, investigation with the same said of the software 2 identification information 410 is conducted.
[0035]As mentioned above, when the capacity of said 3rd software newly downloaded by intact software's existing and eliminating said intact software can be secured, the identification information Management Department 310 takes out directions of said intact software to the microcomputer 140. And intact software is eliminated and said 3rd software becomes downloadable from the memory 130.
[0036](Embodiment 3) Drawing 5 is a block diagram of the apparatus with a software download function concerning this invention. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.
[0037]A display section for a monitor for 500 to display said identification information and 510 to output said identification information to the monitor 500 in drawing 5, An output terminal for 520 to connect with the monitor 500 and 530 are user I/F parts for users, such as a remote control and a keyboard, to give directions to apparatus with a software download function.
[0038]When downloading software newly, the identification information Management Department 300 reads the identification information of the software accumulated in the memory 130. And said read identification information is transmitted to the display section 510. In the display section 510, said identification information which changed said inputted identification information into the video signal, and was changed into the video signal is outputted to the monitor 500 from the output terminal 520.
[0039]A user chooses the software which may be eliminated from said identification information displayed on the monitor 500, and sends directions to the user I/F part 530.
[0040]If elimination directions are received, the microcomputer 140 will eliminate the applicable portion of the memory 130, and will secure an availability.
[0041](Embodiment 4) Drawing 6 is a block diagram of the apparatus with a software

download function concerning this invention. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0042]In drawing 6, 600 is an insufficient memory space informing part for notifying a user of the shortage of an availability of the memory 130.

[0043]When downloading software newly, the server 10 transmits the capacity of said software to download to apparatus with a software download function. The download control section 120 receives said software capacity information, and compares with the availability information on the memory 130 received beforehand. When said software capacity is larger than said availability (i.e., when it cannot download), it directs to the insufficient memory space informing part 600. It outputs to a monitor that the insufficient memory space informing part 600 wants the availability of the memory 130 for the user. Although the monitor was chosen as a recognition means of said notice, if a user can be recognized, it is feasible by other means, such as a sound.

[0044](Embodiment 5) Drawing 7 is a figure showing an example of the address area of the memory 130. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0045]In drawing 7, 700 is identification information which shows the execution priority of software.

[0046]When choosing the software eliminated from the software accumulated in the memory 130, the identification information Management Department 310 searches the low software of the priority 700 with this composition first. Here, the priority 700 shall become low in order of A, B, C, and .. When the priority (it is hereafter described as the priority 1) of the 1st software 200 and the priority (it is hereafter described as the priority 2) of the 2nd software 210 are measured, the priority 1 is lower than the priority 2. Next, the identification information Management Department 310 checks the flag 420 of the software 1 identification information 400, When intact, the software 1 identification information 400 is investigated, and when the capacity which doubled the capacity of the 1st software 200 and the capacity of the free space 230 is larger than the capacity of said 3rd software, it becomes downloadable.

[0047](Embodiment 6) Drawing 8 is a figure showing an example of an address area of the memory 130. About the same composition as an embodiment mentioned above, explanation is omitted using the same mark.

[0048]In drawing 8, 800 is a counter holding execution frequency of software.

[0049]A value of the counter 800 increases, whenever each software accumulated in the memory 130 is performed. The identification information Management Department 310 makes high the priority 700 of software with a high value of the counter 800. A user sets up arbitrarily or the threshold value of the priority 700 can determine execution frequency for said every software as origin statistically here. It is also possible to change by using a timer at arbitrary

time.

[0050](Embodiment 7) Drawing 9 is a figure showing an example of an address area of the memory 130. About the same composition as an embodiment mentioned above, explanation is omitted using the same mark.

[0051]In drawing 9, 900 is a time flag holding the latest execution time of software.

[0052]The time flag 900 holds the time, whenever each software accumulated in the memory 130 is performed. The identification information Management Department 310 compares a value of the time flag 900 with the present time, and makes high the present time and the priority 700 of near software.

[0053](Embodiment 8) Drawing 10 is a block diagram of apparatus with a software download function concerning this invention. About the same composition as an embodiment mentioned above, explanation is omitted using the same mark.

[0054]In drawing 10, since availabilities of the memory 130 run short, 1000 is temporary memory which stores temporarily software which is not downloadable.

[0055]When capacity of software to download is larger than an availability of the memory 130, it accumulates in the temporary memory 1000 first. Said software accumulated in the temporary memory 1000 is once performed. Then, the microcomputer 140 displays an inquiry whether software in the temporary memory 1000 is replaced with software in the memory 130 on a monitor through a display section. Although a monitor was chosen as a means for making a user recognize said inquiry, if a user can be recognized, it is feasible by other means, such as a sound.

[0056]When a user who received an inquiry points in the user I/F part 530 to whether it agrees or not and directions of consent are made, the microcomputer 140 eliminates intact software accumulated in the memory 130.

[0057](Embodiment 9) Drawing 11 is a block diagram showing the software downloading method concerning this invention. About the same composition as the embodiment mentioned above, explanation is omitted using the same mark.

[0058]In drawing 11, 1100 acquires the list of the software which may be eliminated from the server 10, and is an elimination list acquisition part to hold.

[0059]When downloading software, the server 10 transmits said elimination list first. Said elimination list is transmitted to the elimination list acquisition part 1100 from a download control section.

[0060]When eliminating software, the microcomputer 140 checks the contents of said acquired elimination list to the elimination list acquisition part 1100. Next, the software written to said elimination list is searched from the software accumulated in the memory 130. As a result of search, if there is applicable software, the software will be eliminated and the availability of the memory 130 will be secured.

[Translation done.]

* NOTICES *

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]The block diagram of one embodiment of the apparatus with a software download function concerning this invention
[Drawing 2]The figure showing an example of the address area of the memory which accumulates the downloaded software
[Drawing 3]The block diagram of one embodiment of the apparatus with a software download function concerning this invention
[Drawing 4]The figure showing an example of the address area of the memory which accumulates the downloaded software
[Drawing 5]The block diagram of one embodiment of the apparatus with a software download function concerning this invention
[Drawing 6]The block diagram of one embodiment of the apparatus with a software download function concerning this invention
[Drawing 7]The figure showing an example of the address area of the memory which accumulates the downloaded software
[Drawing 8]The figure showing an example of the address area of the memory which accumulates the downloaded software
[Drawing 9]The figure showing an example of the address area of the memory which accumulates the downloaded software
[Drawing 10]The block diagram of one embodiment of the apparatus with a software download function concerning this invention
[Drawing 11]The block diagram showing the software downloading method concerning this invention
[Explanations of letters or numerals]
120 Download control section

130 Memory
300 Identification information adjunct
310 Identification information Management Department
1000 Temporary memory
1100 Elimination list acquisition part

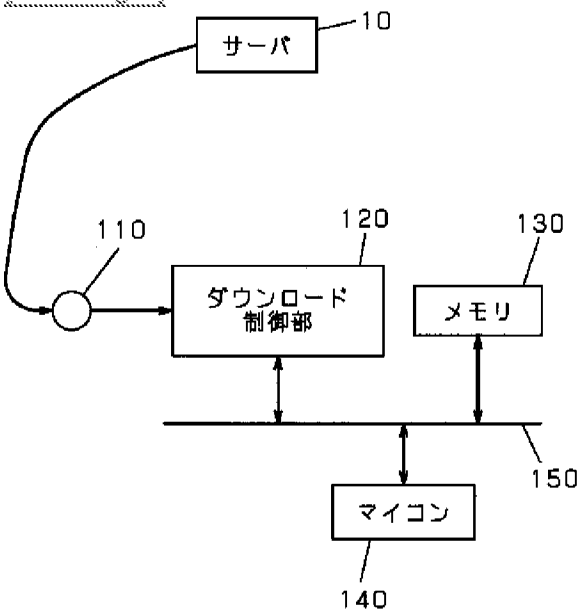
[Translation done.]

* NOTICES *

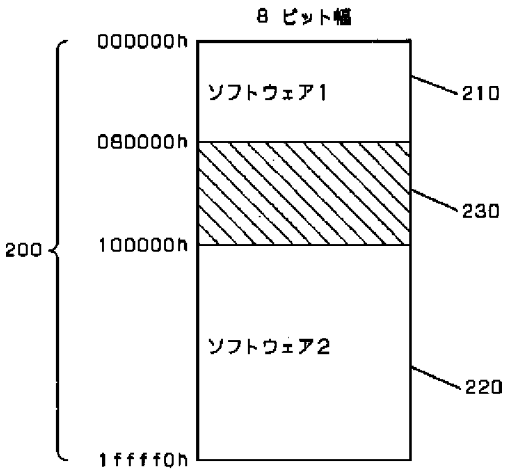
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

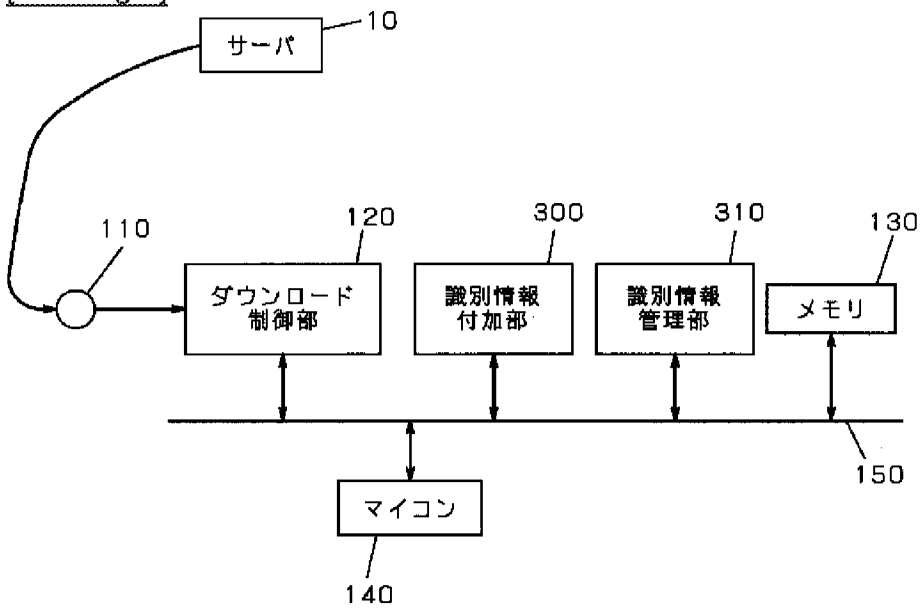
[Drawing 1]



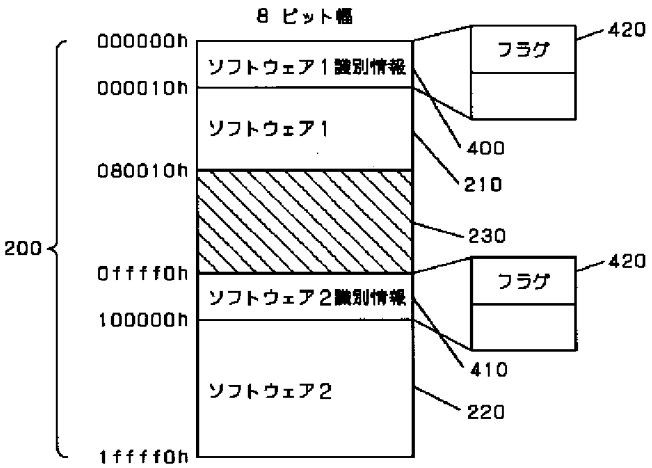
[Drawing 2]



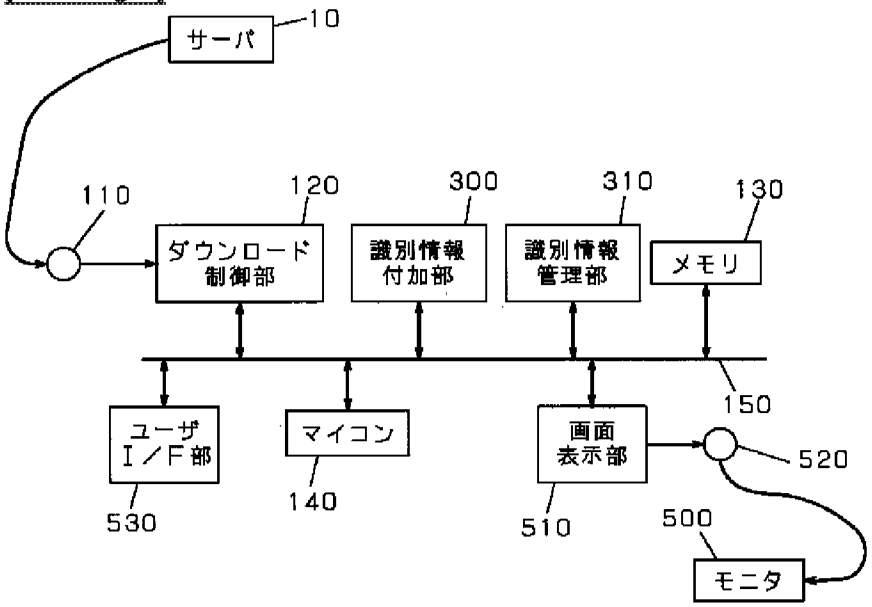
[Drawing 3]



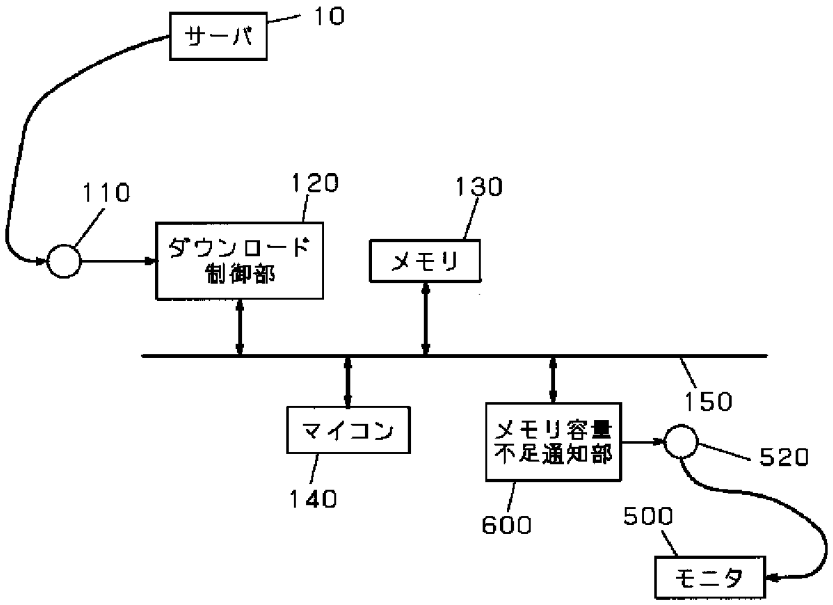
[Drawing 4]



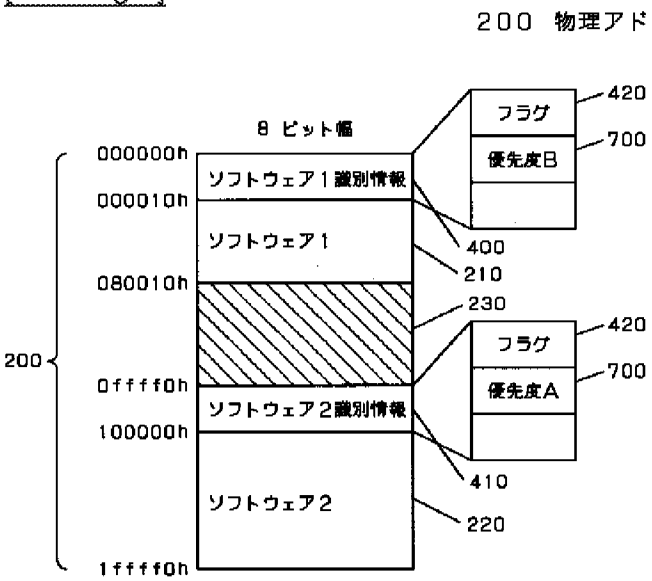
[Drawing 5]



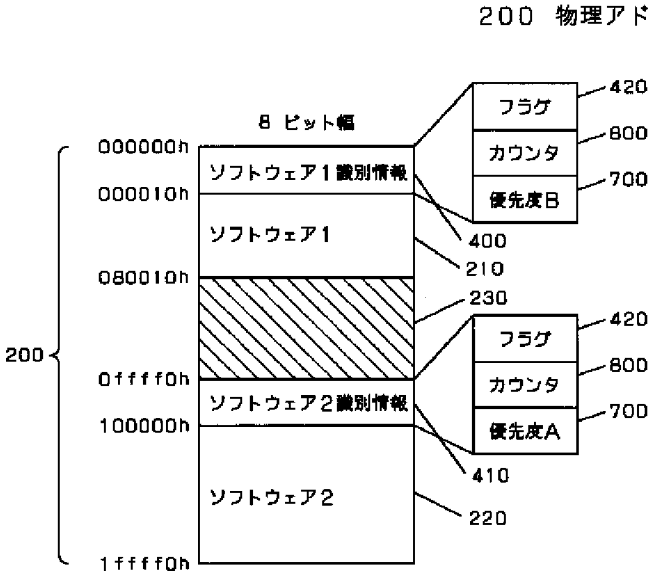
[Drawing 6]



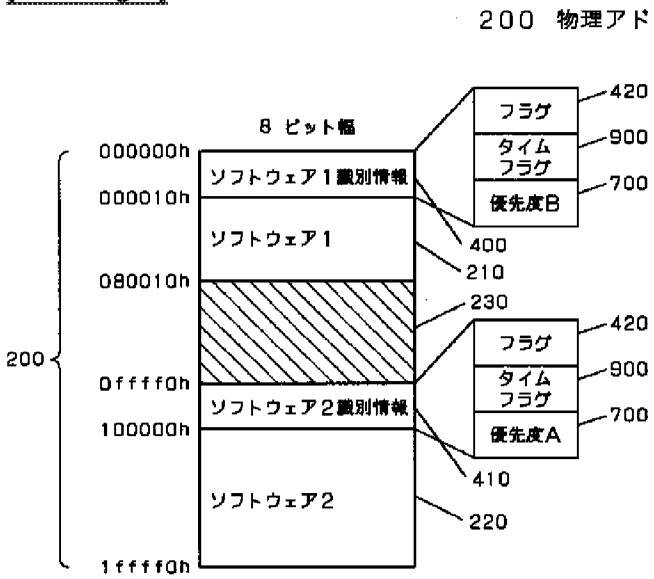
[Drawing 7]



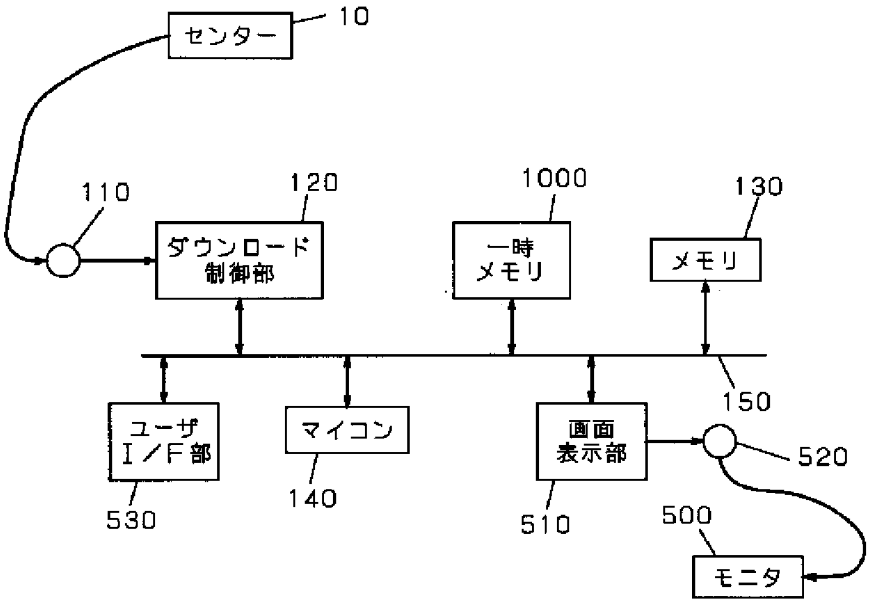
[Drawing 8]



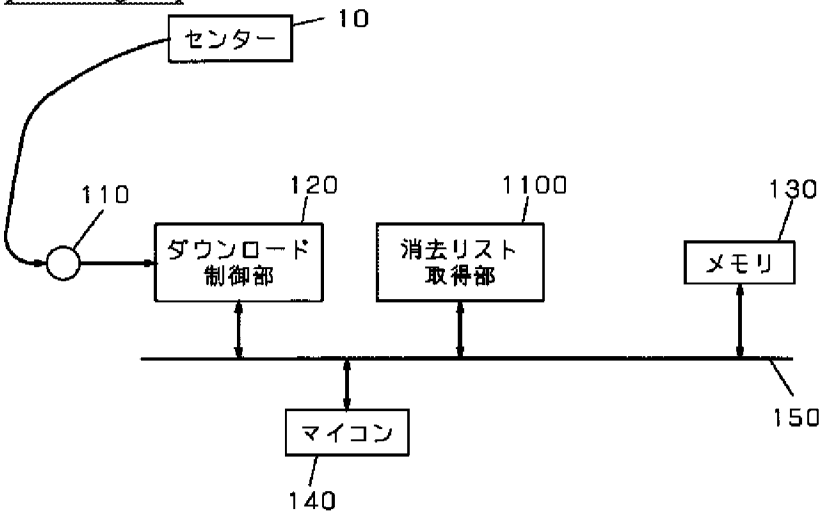
[Drawing 9]



[Drawing 10]



[Drawing 11]



[Translation done.]